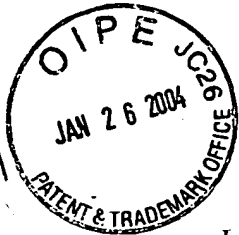
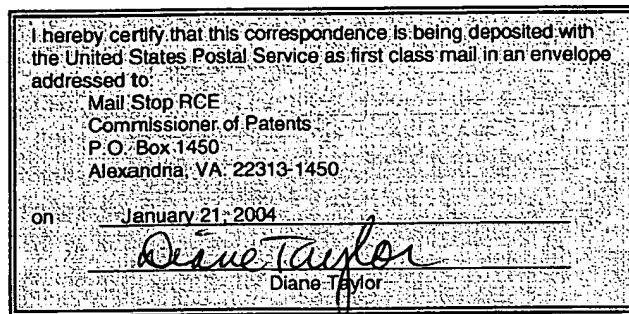


17^{2/4}
2-10.04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: DUMITRU MIHAI IONESCU
For : APPARATUS, AND ASSOCIATED METHOD, FOR FORMING A SIGNAL
EXHIBITING SPACE-TIME REDUNDANCY
U.S. Serial No.: 09/696,432
Filed: OCTOBER 25, 2000
Group Art Unit: 2634
Examiner: LIU, SHUWANG
Docket No.: NC17502 (9019.069)

Mail Stop RCE
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**DECLARATION PURSUANT TO 37 C.F.R. 1.132**

I, Dumitru Mihai Ionescu, hereby declare and state that:

1. I have a Masters degree in Electrical Engineering that I received from the Technical University of Iasi in 1986, and a Ph.D. in Electrical Engineering that I received from the University of Colorado in 1996 through the Electrical Engineering Department thereof.
2. I am presently a Senior Research Scientist at the Nokia Research Center of the Nokia Corporation. I have been in this position since 1998. Prior to this position, I was a Senior Systems Engineer at the Omnipoint Corporation. In my position at the Nokia Research Center, and my prior position at the Omnipoint Corporation, I have been involved in the design of digital communication equipment and, particularly, with the design of space-time coding methods and apparatus for communication equipment. I am also a reviewer of paper submissions for various professional journals published by the Communications Society and the Signal Processing Society of the Institute of Electrical and Electronic Engineers. I am also author of several journal

papers published in various Transactions of the Institute of Electrical and Electronic Engineers, a world leading professional periodical in the art to which the subject patent application pertains.

3. I have read and reviewed the patent application of U.S. Patent Application Serial No. 09/696,432, of which I am the inventor, the claims that are now pending in the application, and the rationale set forth by the patent examiner in his Office Action dated 21 October 2003 and his Advisory Action dated 12 December 2003.

4. I disagree with the examiner's assertion that the equation set forth on page 16, line 2, of the subject patent application of: $\mathbf{D}_{ec}^H \mathbf{D}_{ec} = (\text{tr}(\mathbf{D}_{ec}^H \mathbf{D}_{ec}) / L_i) \mathbf{I}_{L_i}$ fails to describe a difference matrix multiplied together with a Hermetian matrix thereof being proportional to an identity matrix. And, I would further disagree if the Examiner were to assert that this equation does not show a difference matrix multiplied together with the hermetian of the difference matrix being proportional to an identity matrix.

5. The terminology "hermetian of a matrix A" also means "the transposed complex conjugate of the matrix A." In other words, the equation shown on page 16, line 2, of the subject patent application shows a difference matrix \mathbf{D}_{ec} that is multiplied with its own hermetian matrix, i.e., the difference matrix is multiplied with the transposed conjugate of itself.

6. I have also reviewed U.S. Patent No. 6,115,427. At column 11, lines 48-49 of the patent, the patent makes reference to a "hermetian (transposed conjugate) of A." I believe it to be common in the art to which the subject patent application pertains to use the phrase "hermetian transposition" so as to mean "conjugate transposition", and to refer to the "hermetian transposition of the matrix A" as the "the hermetian of A."

7. Also in my review of U.S. Patent No. 6,115,427, I made special note of column 14, line 34, of the reference. This portion of the reference makes mention of co-factors of $A(c,e) = B(c,e) B^*(c,e)$ taken over all pairs of distinct code words e and $c \dots$. There is no reference in this section, or any other portion of the patent, that $A(c,e)$ is proportional, or should be proportional, to an identity matrix. I disagree, therefore, with any assertion by the Examiner that the subject matter of the independent claims of the subject patent application are shown in U.S. Patent 6,115,427.

8. I further note that the subject matter of the subject patent application was approved for publication in the IEEE Transactions on Wireless Communications in an article entitled, "On Space-Time Code Design", January 2003, after undergoing a peer review process

that reviewed the subject matter of the article for purposes of determining its novelty and usefulness.

9. I declare further that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such false statements may jeopardize the validity of the application or any patent issuing thereon.

Post Office Address:

Date:



Dumitru Mihai Ionescu

2715 W. 10TH ST.

DALLAS TX 75211

January 21, 2004